

THE WALTER & ELIZA HALL INSTITUTE OF RESEARCH IN PATHOLOGY AND MEDICINE

Director's Report to the Annual Meeting of the Board 28th July, 1922.

(Published by Courtesy of the Board of the Institute)

The Walter and Eliza Hall Institute was built in 1916 in the grounds of the Melbourne Hospital, adjoining the pathological block, and receives a sum of £2600 per annum from the Walter and Eliza Hall Trust, and £500 annually from the Melbourne Hospital Clinical Fund, for the prosecution of research in pathology and medicine.

Dr. S. W. Patterson was appointed Director. He assumed duty in January, 1920, and proceeded to equip the laboratories for work in Biochemistry, Bacteriology, Morbid Anatomy and Histology, and Experimental Pathology.

In April, 1920, he was joined by Dr. N. Hamilton Fairley as First Assistant, and Miss F. E. Williams as Second Assistant. Two skilled technical assistants are in charge of the Histology and Bacteriology preparation departments, and the Board has recently appointed Miss M. Cowen, a Science graduate, to assist in the Biochemical department. The John Grice Cancer Research Scholar (a whole-time appointment) works in the Institute, and the University Clinical Research Scholars (part time) work under the supervision of the Director. The two Resident Clinical Pathologists of the Hospital work in the Institute, and, as well as doing the routine work required by the Hospital, carry out research work in conjunction with the Institute staff. Several voluntary workers have carried out investigations in the Institute (referred to below); the chief of these (Dr. H. R. Dew) is now acting as First Assistant, since the resignation of Dr. Hamilton Fairley on his appointment as Professor of Tropical Clinical Medicine in Bombay.

In addition to assisting the Medical Staff of the Hospital in the clinical and laboratory investigation of their patients, the Institute staff has carried out research work, which may be classified under various headings.

Respiratory Infections.

A series of observations on the bacteriology of acute respiratory disease in Victoria has been made by the Director and Miss Williams.

They have made cultures from the lungs and bronchi of 427 persons examined post mortem, and have correlated the germs recovered with the nature of the lung condition found to be present, particular attention being paid to influenza bacilli and pneumococci. In addition, the cultural characteristics of the pneumococci and allied germs, and their biochemical reactions and serological types, according to the American classification with Mulford sera, have been examined. They have also prepared type sera by immunizing Australian wild rabbits, and are using these sera to classify the bacteria of the pneumococcus group found locally. By these methods, the germs found in the sputa of over two hundred persons suffering from pneumonia and broncho-pneumonia have been classified.

A preliminary account of the results obtained was contributed by the Director to a discussion on pneumonia at the Australasian Medical Congress, Brisbane, 1920; and two papers on this subject are in the press in special medical journals in England.

Different types of pneumococci from the Institute were sent to Dr. Penfold at the Commonwealth Serum Laboratories, who has prepared serum from horses for the treatment of pneumonia. The efficacy of this serum is being tested on pneumonia patients in the hospital, and already good results are indicated, since of 51 patients receiving serum 15 per cent. died, while the death rate in 455 patients not treated with serum was 21 per cent. These results on the serum treatment of pneumonia were incorporated in a paper by the Director on the prognosis of pneumonia in Australia, published in "The Medical Journal of Australia."

Dr. H. F. Maudsley, one of the Clinical Research Scholars, carried out work on the clinical side of pneumonia, and was able, by counting the cells of the blood, to indicate the outcome of the disease likely to result.

Hydatids.

It was decided to revise the pathology of hydatid disease occurring in Australia, and Dr. Hamilton Fairley, as First Assistant, undertook an investigation of methods of testing the blood of patients as an indication of the presence of hydatid

disease. Over a thousand patients were tested, of whom about 150 had hydatid disease, and the value of the complement fixation test in the diagnosis of hydatid was confirmed. An even more important aspect is the value of the test in enabling the surgeon to determine if the result of operation is successful, or if further hydatid cysts are present in the patient. Samples of blood are regularly received for testing from patients in South Australia and New South Wales, as well as all parts of Victoria, as this is the only laboratory in Australia which carries out the test. Two papers were published by Dr. Fairley in "The Medical Journal of Australia" on this subject, and a full report of his work has been published in the "Quarterly Journal of Medicine" in England.

Observations have been made on patients in hospital of methods of treatment of hydatid by various chemicals, but so far no evidence of success has been obtained.

Since Dr. Fairley's departure, this work has been continued and extended by the Director (Dr. Patterson) and Miss Williams, in an endeavour to make the test more sensitive. With the help of Dr. Dew a complete investigation of the life history of hydatids is in progress, infected dogs, sheep and monkeys being used for the purpose. Already much valuable information has accumulated to throw light on the disease as it occurs in man, and a preliminary paper on the development of the scolex is in the press.

An analysis of the clinical aspects of hydatid disease in man is being made by Dr. K. D. Fairley, who has already published one paper in "The Medical Journal of Australia" on hydatid as it affects the lung. In order to place a knowledge of this disease on an up-to-date footing, he is at present engaged in collating the cases of hydatid of the liver which have been in the Melbourne Hospital during the past ten years; he is also carrying out a series of observations on the value of the Casoni reaction in the diagnosis of hydatid disease.

Dysentery.

The Director and Miss Williams are carrying out a study of the summer diarrhœas of adults and children. They found that a large amount of this was due to true dysentery germs. A collection of fifty-six of these germs was made, and found to fall into various groups. The proportion of the various groups has been worked out by the production of sera from Australian rabbits. Dr. Penfold has now prepared horse sera for the treatment of diarrhœa cases, from bacteria isolated at

the Institute, and tests are being made of its efficacy in the treatment of disease.

In addition, they have worked out a test of the patient's blood in chronic cases of dysentery, and have been enabled, as the result of applying this test, to prepare vaccines that have alleviated the symptoms of patients who had been ill for years.

Dr. Fairley and Dr. Dew prepared a paper on their observations on 1817 cases of dysentery as observed in Egypt during the war, which was published in the same issue of "The Medical Journal of Australia" as the paper on the results of Patterson and Williams.

The Director and Miss Williams have also published a paper in England on the bacteriology and pathogenicity of a type of dysentery germ not hitherto described in Australia or England.

There were very few cases of dysentery last summer, but the investigations have reached a stage from which they can be pushed on if next summer brings an epidemic.

Protozoal Diseases.

Owing to the risk of introducing new diseases into Australia through returned members of the Australian Imperial Force, it was decided to continue in the Institute the study of certain protozoal and helminthic diseases commonly encountered abroad. Drs. Fairley and Dew have completed studies on malaria and human bilharziosis. A paper on the former subject was presented to the Medical Congress in Brisbane, 1920; and a detailed study of the pathology of human bilharziosis has been sent to England for publication in a special journal.

Wassermann Re-action.

A great deal of experimental work was carried out by Dr. Fairley in regard to the Wassermann test for syphilis. A serological examination of over 7000 hospital patients suspected of syphilis has been made, and the different methods of carrying out the test compared. The value of the improvement in the accuracy of the results was endorsed by numerous practising physicians and surgeons at a meeting of the local branch of the British Medical Association in October, 1921, at which Dr. Fairley presented a report of his work. The Director and Miss Williams are now undertaking a research on the value of the ice-box method of complement fixation with the cerebrospinal fluid in neuro-vascular syphilis.

Dr. W. W. S. Johnston and Dr. Patterson have concluded an investigation of syphilis of the aorta in 186 cases post mortem, correlating the macroscopic and microscopic appearances with the Wassermann test; and Dr. Patterson is also investigating the clinical and pathological condition in syphilis of the lungs. Papers on these subjects are in preparation.

Dr. Patterson and Miss Williams have also begun an investigation of the complement fixation test as applied to gonorrhœa and to tuberculosis.

Cancer Research.

The holder of the John Grice Cancer Research Scholarship undertakes the investigation and recording of cases of malignant diseases occurring in the Melbourne and Austin Hospitals.

Dr. P. A. Stevens examined a series of 62 cases of epithelioma of the lip, and the results were embodied in a paper published in "The Medical Journal of Australia." He also prepared a report on the present condition of Cancer Research throughout the world; this was published as a brochure by a grant from the University Council. Dr. Stevens and Dr. R. Wettenhall commenced observations on the action of X-rays on the skin, dogs and guinea pigs being used in these experiments. This work is now being prosecuted by the Director, and expanded to embrace the action of X-rays and radium on malignant disease on material from cases supplied by Dr. Frank Andrew and Dr. J. Clendinnen.

Dr. Derrick, another Cancer Research Scholar, has carried out work on tumours of the kidney, which has been published in "The Medical Journal of Australia," and has made a series of observations on the treatment of malignant disease by intravenous injection of foreign protein.

Dr. Dew prepared and published a paper on the clinical and pathological aspects of tumours of the brain, as exemplified in the patients of the Melbourne Hospital during the last ten years. He is now engaged on similar work in regard to tumours of the testis.

Other Researches.

Miss Cowen, the new Biochemical assistant, has commenced work on the chemistry of the blood in diseases of the liver.

Dr. W. W. S. Johnston is engaged in comparing the results of several methods of estimating the functional efficiency of the kidneys, and Dr. J. R. Williams completed a series of

observations on the bacteriology of infections of the tonsils.

Dr. Lawrence, of the Commonwealth Air Force, worked at methods of estimating the capacity of air pilots for high flying, by observing the effects of breathing rarefied air in the laboratory.

Drs. Trumble and Lawton are at present testing basal metabolism in cases of diabetes and goitre.

Drs. Cox and Bell have used the estimation of the sugar in the blood as a means of investigating diabetes and diseases of the pancreas.

With the co-operation of Dr. Eric Yule, work is being done on the diseases of the roots of teeth, observing the appearances with the X-rays, and investigating the causes of dental caries by culture of the bacteria and microscopic sections to determine the site of the infection.

A collective investigation on the incidence of tuberculosis in the hospital population is being made by the careful recording of all evidences of healed and active tubercle in every case coming to post mortem, and already details of 380 examinations have been recorded.

At present there are fifteen workers engaged whole or part time in research work in the Institute. Most of these require to be taught laboratory methods, and then can carry on under direction. All require a good deal of supervision and help.

As a concluding observation, it may be stated that the situation of the Institute, in the grounds of the Hospital, gives an admirable opportunity for the advancement both of pathology and medicine, and the Director regards it as essential that there should be the closest co-operation between workers in the wards and in the laboratory. In his opinion, it is necessary to have, in addition, a ward or a number of beds allocated for the continued observation and investigation of patients in all stages of disease, which is almost impossible in the crowded wards of a large general hospital.

Appended is a list of the publications from the Institute.

LIST OF PUBLICATIONS FROM THE INSTITUTE.

Respiratory Infections.

Patterson, Pathology of Influenza, Med. Journal of Australia, 1920, I, p. 207.

Patterson & Williams, Bacteriology of Acute Respiratory Infections, Trans. Australian Medical Congress, 1920, p. 254.

- Maudsley, Blood Conditions in Acute Pneumonia, Medical Journal of Australia, 1921, I, p. 484.
 Patterson & Williams, Studies of Green Micrococci, Journal of Path., and Bact., 1922.
 Patterson, Prognosis of Pneumonia, Medical Journal of Australia, 1922, II.
 Patterson & Williams, Pfeiffer's Bacillus and Influenza (in the press).

Intestinal Infections.

- Dew & Hamilton Fairley, Dysenteric Infections, Medical Journal of Australia, 1921, I, p. 453.
 Patterson & Williams, Epidemic Diarrhoea, Medical Journal of Australia, 1921, I, p. 460.
 Patterson, Johnston & Williams, Laboratory Diagnosis of Enteric Fever, Medical Journal of Australia, 1921, II., p. 425.
 K. D. Fairley, Treatment of Typhoid Fever with Intravenous Vaccines, Medical Journal of Australia, 1921, II., p. 423.
 Dew, Amoebic Abscess of Liver, Medical Journal of Australia, 1921, II., p. 510.
 Patterson & Williams, Bacteriology and Pathogenicity of the Sonne Bacillus, Journal of Path. and Bact., 1922.

Protozoal Infections.

- Hamilton Fairley, Helminthic Infestations. Trans. Australian Medical Congress, 1920.
 Fairley & Dew, Pathology of Malarial Infections. Trans. Australian Medical Congress, 1920, p. 637.
 Hamilton Fairley, Studies in Syphilis, Medical Journal of Australia, 1921, II., p. 587.
 Fowler, Familial Syphilis, Medical Journal of Australia, 1921, II., p. 599.
 Hamilton Fairley, Complement Fixation Reaction in Hydatid Disease, Q.J. of Med., Vol. 15, April, 1922.
 Hamilton Fairley, Complement Fixation Test in Hydatid Disease, Medical Journal of Australia, April, 1922.
 K. D. Fairley, Hydatid Disease of Lung, Medical Journal of Australia, April, 1922.
 Dew & Hamilton Fairley, Human Bilharziosis. (In the press).

Cancer.

- Stevens, Epithelioma of Lip, Medical Journal of Australia, 1920, II., p. 472.
 Stevens, Nasal Polypi, Medical Journal of Australia, 1920, II.
 Stevens, Cancer Research, Melbourne, 1921.
 Dew, Tumours of Brain, Medical Journal of Australia, May, 1922.
 Derrick, Renal Tumours, Medical Journal of Australia, June, 1922.

THE MELBOURNE HOSPITAL RED CROSS AUXILIARY

Report of Toorak and South Yarra Branch for period ended 30th June, 1922.

The Melbourne Hospital Red Cross Auxiliary (Toorak and South Yarra Branch) was formed on 21st November, 1921, when, at the request of the Melbourne Hospital Committee, a preliminary meeting was called by Lady Grice at her residence. A provisional committee was elected to draw up a constitution, and at the next meeting, held at the Melbourne Hospital on 28th November, 1921, this constitution was adopted. Lady Grice was elected president of the Branch, Mrs. J. F. Payne and Mrs. J. Levi vice-presidents, Mr. J. A. Levey hon. treasurer, Miss J. Bage hon. secretary, and a general committee of 25, viz.:—

Mrs. A. S. Austin	Mrs. E. J. Horwood
Mrs. Talbot Brett	Mrs. Kent Hughes
Miss Clare Brett	Mrs. Charles Hutton
Mrs. S. M. Bruce	Mrs. Alex. Landale
Lady Chauvel	Mrs. J. A. Levey
Miss Connibere	Lady Maudsley
Miss Danks	Mrs. John Moffatt
Mrs. J. Fiskén	Mrs. S. W. Patterson
Lady Fraser	Mrs. J. G. Purves
Lady Garran	Mrs. Percy Russell, O.B.E.
Mrs. Gilruth, O.B.E.	Mrs. Hume Turnbull
Mrs. E. Hallenstein	Mrs. Wainwright
Mrs. T. W. White, O.B.E.	

Mrs. Kent Hughes was hon. secretary of the provisional committee, and the success of the Auxiliary in its preliminary stages was mainly due to her keen interest and activity. She has been granted twelve months' leave of absence, when it is hoped that she will again take her place on the Committee.

The Auxiliary was formed to assist the Melbourne Hospital, in accordance with the scheme for the civilian activities of the Red Cross Society. The object of the organisation is to provide additional voluntary service, and secure a more widespread interest in the work of the Hospital.

The membership fee is 2/6 per annum, or £2/2/- for Life membership, each member being entitled to the Red Cross annual certificate and button.